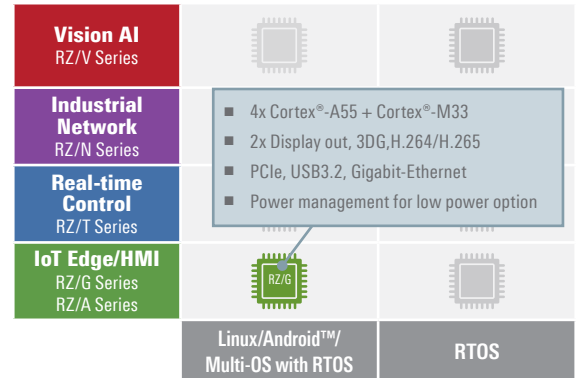


64bit MPU Delivering 1.8GHz for HMI and Edge Computing

RENESAS RZ/G3E GROUP

Quad Arm® Cortex®-A55 and Ethos™ -U55 NPU based Microprocessor (MPU)

RZ/G3E is Renesas' first MPU integrated Quad CPU and NPU in one chip, improving power efficiency, reliability and security for HMI applications. The RZ/G3E offers rich HMI functions including Graphics Engine (GPU), Video Codec, and multi-screen of Full-HD output, and Neural Processing Unit (NPU) for Edge Computing functions. In addition to the Cortex-A55 quad core delivering a powerful 1.8 GHz to run both HMI and edge computing functions, RZ/G3E also features a Cortex-M33 core to enable low power operation. The combination of two different cores enables users to build products with both high performance and low power consumption.



Key Features

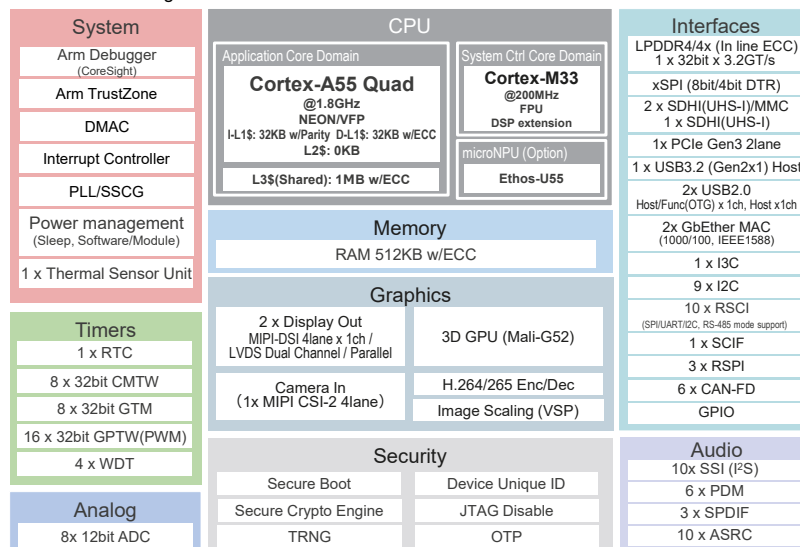
- 4x Cortex®-A55 1.8GHz
- 1x Cortex®-M33 200MHz
- 1x Ethos™-U55 NPU
- 1x Mali™-G52
- 1x H.264/H.265 Codec
- 2x Display out: MIPI DSI, LVDS, Parallel-IF
- 1x Camera In: MIPI CSI-2
- LPDDR4/LPDDR4X Memory Interface
- 2x Giga-bit Ethernet
- PCIe® Interface (Gen3)
- 6x CAN-FD
- 12bit ADC 8ch
- Low Power standby mode
- Package : 15x15mm, 21x21mm

Target Applications

- Industrial HMI, Industrial PC
- Multi-function printer for office
- Medical HMI, Smart Retail
- Home Security, Smart Doorbell, Smart Thermostat
- EV Charger HMI

Block Diagram

RZ/G3E Block Diagram



15x15mm 529pin 0.5mm pin-pitch
21x21mm 625pin 0.8mm pin-pitch

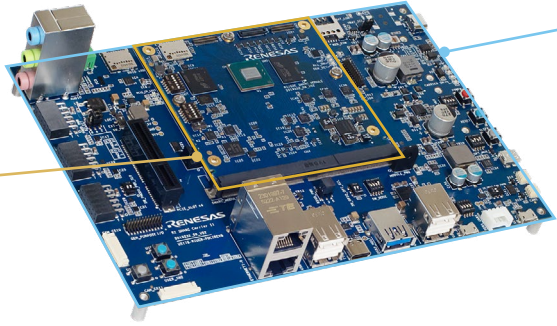
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Evaluation Board Kit - RTK9947E57S01000BE

The RZ/G3E SMARC Evaluation Board Kit (EVK) consists of a combination of a CPU module board and a carrier board that are compliant with the SMARC v2.1 standard.

■ CPU Module Board

- RZ/G3E R9A09G047E57GBG x1
- LPDDR4X SDRAM: 4GB × 1
- QSPI flash memory: 16MB × 1
- eMMC memory: 64GB × 1
- PMIC power supply
RAA215300#HA8 implemented
- microSD card x2
- JTAG connector
- ADC x8 channels



■ Carrier Board

- Gigabit Ethernet x2
- USB2.0 Micro B OTG
- USB2.0 Type-A x2
- USB3.2 Type-A, USB3.2 Type-C
- MIPI CSI-2 Camera interface x2
- Micro HDMI, MIPI-DSI/LVDS interface x2
- uSD interface
- Mono speaker interface, Stereo headphone, Mic. and Aux. interfaces
- CAN interface x2
- PCIe Gen3 4-lane Slot
- M.2 Key E interface
- Module supply current monitor
- USB-Type C power input

Software Package

Select your ideal Linux package from the following three types.

	Linux BSP Plus	Verified Linux Package	HMI SDK
Target Users	Expert	Expert	Beginner
Kernel Support Term	2 years	10 years	10 years
Kernel Update	Every year	Every 2 years	Every 2 years
Yocto Update	Every 2 years	No	No
Verification Level	Low	High	High
Maintenance Term	none	6 month	6 month

Ordering References

Product Group	RZ/G3E							
Part Number	R9A09G047E57GBG	R9A09G047E47GBG	R9A09G047E37GBG	R9A09G047E27GBG	R9A09G047E58GBG	R9A09G047E48GBG	R9A09G047E38GBG	R9A09G047E28GBG
Arm® Cortex®-A55	4		2		4		2	
Arm® Ethos-U55	Yes	No	Yes	No	Yes	No	Yes	No
Security	Yes							
Package	FCBGA							
Pin Count	529Pin				625Pin			
Package Information	15x15mm, 0.5mm pitch				21x21mm, 0.8mm pitch			

For more details, please visit: [renesas.com/rzg3e](https://www.renesas.com/rzg3e)



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